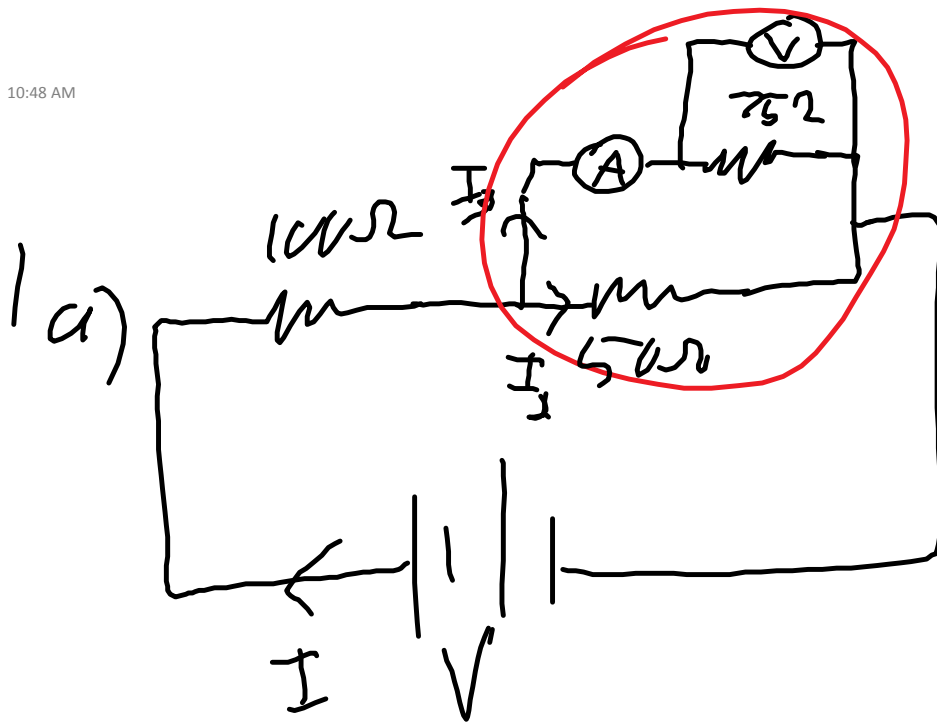


# Quiz



b)

Parallel portion

$$\frac{1}{R_{T_2}} = \frac{1}{R_2} + \frac{1}{R_3}$$

$$\frac{1}{R_{T_2}} = \frac{1}{75} + \frac{1}{50} = \frac{2}{150} + \frac{3}{150}$$

$$R_{T_2} = 30\Omega$$

$$R_T = R_1 + R_{T_2} = 100\Omega + 30\Omega = 130\Omega$$

$$c) P = VI \quad V_1 \neq \mathcal{E}_{mf}$$

$$P = I^2 R_{100\Omega} \quad I = \frac{V_+}{R_T} = \frac{15.3045}{130}$$

$$= 0.12 \text{ W or } 0.055 \text{ W or } 0.013 \text{ W}$$

$$d) I = \frac{V_+ = \mathcal{E}_{mf}}{R_+}$$

$$V_1 = IR_1$$

$$V_2 = V - V_1$$

$$I_2 = \frac{V_2}{R_2}$$

$$e) I_3 = \text{--- given } \mathcal{E}_{mf} = V_+ + I(r)$$

$$V_2 = I_3 R_3 \leftarrow 75\Omega = V_2 = (I_2) R_2$$

$$V_3 = I_3 R_3 = V_2 - (I_2) R_2$$

$$I = I_2 + I_3$$

$$V_t = I R_1 + V_3$$

$$r = \frac{\mathcal{E}_{\text{mf}} - V_t}{I} = \boxed{9.5 \Omega}$$